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New insight into the melting behavior of nanoconfined semicrystalline polymers -The effect of an immobile interfacial layer at the substrate- MITSUNORI ASADA, Kuraray Co., Ltd., NAISHENG JIANG, PETER GIN, LEVENT SENDOGDULAR, MAYA K. ENDOH, Depertment of Materials Science and Engineering, Stony Brook University, MORIYA KIKUCHI, Japan Science Technology Agency, ERATO, Takahara Soft Interfaces, ATSUSHI TAKAHARA, Japan Science Technology Agency, ERATO, Takahara Soft Interfaces, Graduate School of Engineering, Kyushu University, TADANORI KOGA, Depertment of Materials Science and Engineering, Stony Brook University, Chemical and Molecular Engineering Program, Stony Brook University — It is known that when semicrystalline polymer chains are confined on a nanometer length scale, the crystalline structures and dynamics differ from bulks, the so-called "nanoconfinement effects." In this talk, we will report the anomalous melting behavior of nano-confined polyethylene spin cast films prepared on Si substrates by integrating various in-situ grazing incidence scattering techniques. We found that a very thin adsorbed layer at the weakly interactive substrate interface plays a crucial role in the melting behavior.

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